REMARKS

Claims 2-6 and 8-12 remain pending in the application.

Substance of Examiner Interview

Applicants respectfully thank the Examiner for his time and efforts during the telephonic interviews of December 5 and 6, 2007. In those interviews, how the claimed invention is patentably distinguished over the applied art was discussed.

The discussion focused on the claim limitations of "determining segments that are no longer adjacent to a segment boundary based on said object motion estimation" and "reducing impact of color blur from said segments that are no longer adjacent by adjusting weights assigned to one or more frames for pixels that lie within a blur region near said segment boundary." It was discussed how the Yokoyama and Borneo references do not teach or suggest the claim limitations. In particular, FIGS. 3 and 5 of the Yokoyama reference, and FIGS. 5a and 8 of the present application were discussed and contrasted.

In conclusion, the Examiner recommended that the applicants respond to the office action by distinguishing the claimed invention from the Yokoyama reference in writing.

Claim Rejections--35 USC 103

Original claims 2 and 8-10 were rejected under 35 USC 103 as being unpatentable over Kalivas et al, in view of Yokoyama (USP 5,646,691), further in view of Borneo et al. Applicants respectfully traverse this rejection.

Previously-presented claim 2 recites as follows.

2. A method for temporally filtering a video sequence, the method comprising:

using object motion estimation for arbitrarily shaped segments to align corresponding pixels between at least two frames;

determining **segments that are no longer adjacent** to a segment boundary based on said object motion estimation;

reducing impact of color blur from said segments that are no longer adjacent **by adjusting weights assigned to one or more frames for pixels that lie within a blur region near said segment boundary**; and

computing a weighted average of color values of said corresponding pixels.

(Emphasis added.)

As shown above, previously-presented claim 2 recites "determining **segments that are no longer adjacent** to a segment boundary based on said object motion estimation" and "**reducing impact of color blur** from said segments that are no longer adjacent." In particular, the color blur is reduced "**by adjusting weights assigned to one or more frames for pixels that lie within a blur region near said segment boundary**". (Emphasis added.) As discussed below, these claim limitations are supported by the figures and text of the present application.

FIG. 5a illustrates color blur across segment boundaries. For convenience of reference, FIG. 5a is reproduced below.

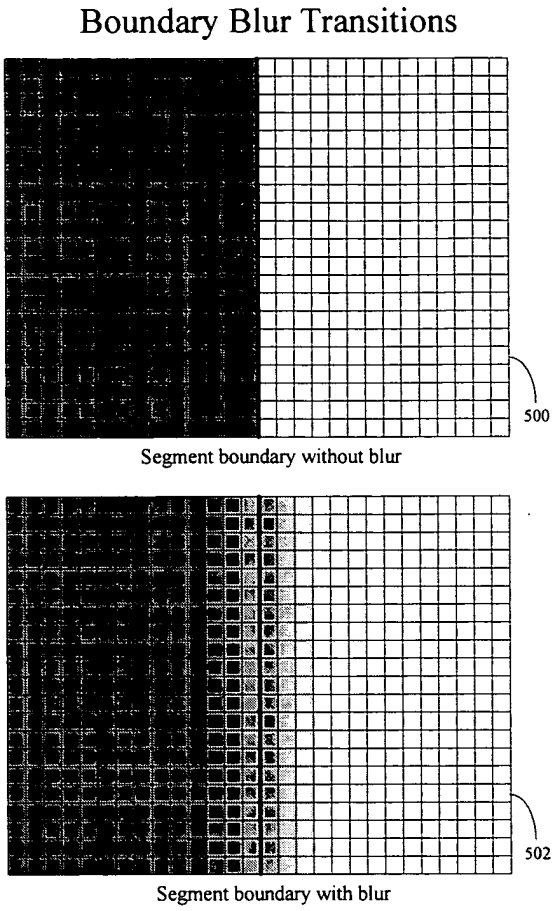


Fig. 5a

As explained on page 11, line 30 to page 12, line 3:

Fig. 5a shows an enlarged example of color blur across a segment boundary. The first rectangular area 500 shows two segments, one gray and one white, meeting at a clearly defined vertical boundary. **The second rectangular area 502 shows two similar segments meeting along a vertical boundary, but this time the color values near the boundary are blurred.** The gray segment gets somewhat lighter in color within a few pixels of the boundary, and the white segment gets someone darker near the boundary, so that the color transitions gradually from gray to white over a width of several pixels.

(Emphasis added.)

The problem of color blur from previously-neighboring segments (objects) is discussed in the present application, for example, on page 12, lines 11-19 as follows.

> The problem arises when neighboring objects move differently between frames. A given segment may move so that a portion of its boundary is no longer adjacent to the same segment as in the previous frame. That boundary portion may be adjacent to a region of a different color, so that the blur at that boundary portion may contain some color from the new region rather than some color from the previously adjacent segment. If the temporal filter averages color values of pixels within the blur region in the previous and current frames, some color from the previously adjacent segment may be introduced to the new segment location where it does not belong. This trailing color can create a visible artifact at the boundary of the moving segment.

An innovative technique for reducing color blur is depicted in FIG. 8 of the present application, which is reproduced below for convenience of reference.

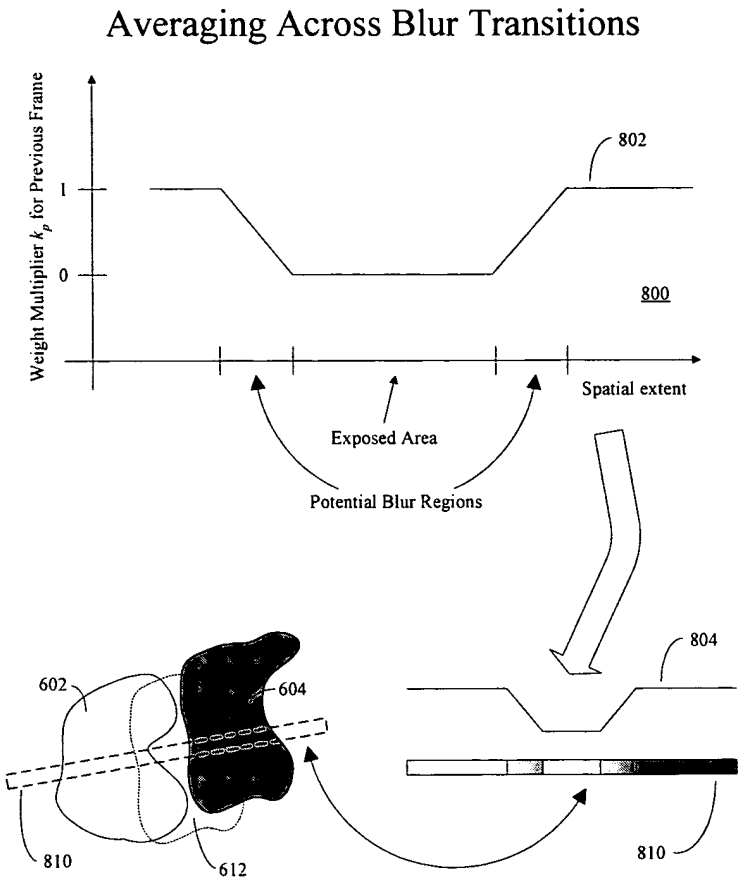


Fig. 8

As described in the specification on page 13, line 29 through page 14, line 3,

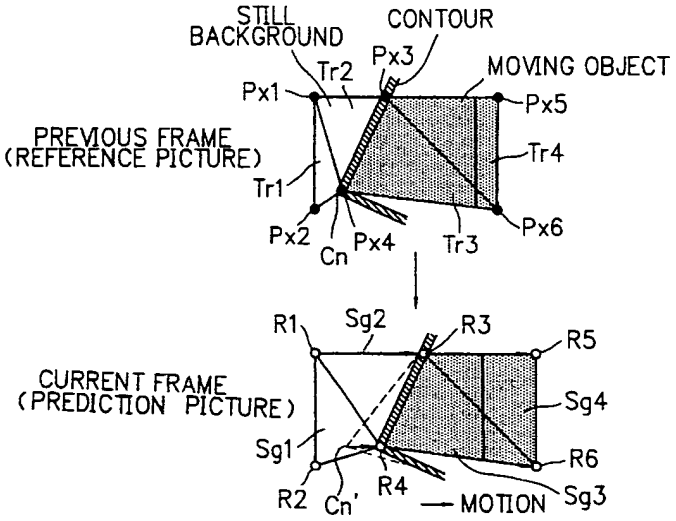
Fig. 8 illustrates the diminution of weights in blur regions that are adjacent to exposed areas (as in the example discussed above with reference to Fig. 7). Graph 800 shows an example of how a weight multiplier k_p can be used to gradually reduce the total weight $k_p w_p$ used for the previous frame in a blur region near an exposed area. Curve 802 shows a linear reduction of the weight multiplier from 1 down to 0 over blur regions, with the multiplier constant at 0 over exposed areas and constant at 1 for the parts of segments not in the blur region. Note that the weights need not be reduced linearly, and one skilled in the relevant art can readily conceive of various other means for diminishing the weights in blur regions that are consistent with the present invention.

Thus, as discussed above, the claimed invention requires using the results of object motion estimation to determine **segments no longer adjacent to a segment boundary**, and **reducing impact of color blur** from said segments that are no longer adjacent. In particular, the color blur is reduced **by adjusting weights assigned to one or more frames for pixels that lie within a blur region near said segment boundary**.

As indicated by the Examiner during the telephonic interview of December 5, 2007, the Yokoyama reference was cited against the above-discussed claim limitations in the latest office action. In particular, FIG. 5 of Yokoyama was pointed out by the Examiner during the telephonic interview. However, as discussed below, this citation to Yokoyama merely relates to movement of a contour.

FIG. 5 of Yokoyama is reproduced below for convenience of reference.

FIG. 5



As shown in the above figure, the contour moves from the previous frame to the current frame.

However, in contrast to the claimed invention, Yokoyama does not relate to the problem of **color blur from previously-neighboring segments**. Furthermore, Yokoyama does not teach or suggest the solution of **reducing the impact of color blur by adjusting weights assigned to one or more frames for pixels that lie within a blur region near said segment boundary.**

Regarding Kalivas and Borneo, these references also do not relate to the problem of **color blur from previously-neighboring segments** and do not teach or suggest the solution of **reducing the impact of color blur by adjusting weights assigned to one or more frames for pixels that lie within a blur region near said segment boundary.**

Therefore, applicants respectfully submit that claim 2 overcomes this rejection.

Claims 3-5 depend from amended claim 2. Therefore, applicants respectfully submit that dependent claims 3-5 are now patentable for at least the reasons discussed above in relation to claim 2.

Claim 6 is hereby amended to recite similar limitations as amended claim 2. Therefore, applicants respectfully submit that claim 6 is now patentable for at least the reasons discussed above in relation to claim 2.

Claim 8 is hereby amended to recite similar limitations as amended claim 2. Therefore, applicants respectfully submit that claim 8 is now patentable for at least the reasons discussed above in relation to claim 2.

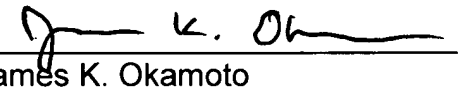
Claims 9-12 depend from amended claim 8. Therefore, applicants respectfully submit that dependent claims 9-12 are now patentable for at least the reasons discussed above in relation to claim 8.

Conclusion

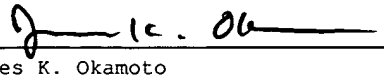
For the above discussed reasons, applicants respectfully submit that the pending claims are now patentably distinguished over the cited art.

The Examiner is invited to call the undersigned for any questions. Favorable action is respectfully solicited.

Respectfully submitted,

Dated: December 10, 2007 By: 

James K. Okamoto
Attorney For Applicant(s)
Reg. No. 40,110
OKAMOTO & BENEDICTO LLP
P.O. Box 641330
San Jose, California 95164
(408) 436-2110
(408) 436-2114 (FAX)

CERTIFICATE OF MAILING			
I hereby certify that this correspondence, including the enclosures identified herein, is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below. If the Express Mail Mailing Number is filled in below, then this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service pursuant to 37 CFR 1.10.			
Signature:			
Typed or Printed Name:	James K. Okamoto	Dated:	December 10, 2007
Express Mail Mailing Number (*optional*):			